

SEQUENCE LISTING

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<120> RECOGNITION MOLECULES FOR THE TREATMENT AND DETECTION
OF TUMORS

<130> GULDE-63

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<160> 91

<170> PatentIn Ver. 3.3

<210> 1

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 1

Asp Ala Trp Met Asp
1 5

<210> 2

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
peptide

<400> 2

Asn Tyr Trp Met Asn
1 5

<210> 3

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 3

Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu Ser
1 5 10 15

Val Lys Gly

<210> 4

<211> 19

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 4

Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu Ser
1 5 10 15

Val Lys Gly

<210> 5

<211> 7

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 5

Gly Gly Tyr Gly Phe Asp Tyr
1 5

<210> 6

<211> 6

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<400> 6

His Tyr Tyr Phe Asp Tyr
1 5

<210> 7
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 7
 Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu
 1 5 10 15

<210> 8
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 8
 Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe
 1 5 10 15

<210> 9
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 9
 Lys Val Ser Asn Arg Phe Ser
 1 5

<210> 10
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 10
 Gln Met Ser Asn Leu Ala Ser
 1 5

<210> 11
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 11
Phe Gln Gly Ser His Val Pro Leu Thr
1 5

<210> 12
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 12
Ala Gln Asn Leu Glu Leu Pro Pro Thr
1 5

<210> 13
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 13
Asn Tyr Trp Val Asn
1 5

<210> 14
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 14
Asn Tyr Trp Ile Asn
1 5

<210> 15
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 15
Asn Tyr Trp Tyr Asn
1 5

<210> 16
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 16
Asn Tyr Trp Trp Asn
1 5

<210> 17
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 17
Asp Ala Trp Ile Asp
1 5

<210> 18
<211> 5
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
peptide

<400> 18
Asp Ala Trp Val Asp
1 5

<210> 19
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 19
 Asp Ala Trp Tyr Asp
 1 5

<210> 20
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 20
 Asp Ala Trp Trp Asp
 1 5

<210> 21
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 21
 Glu Ile Arg Ser Lys Ala Asn Asn Tyr Ala Thr Tyr Tyr Ala Glu Ser
 1 5 10 15

Val Lys Gly

<210> 22
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 22
 Glu Ile Arg Leu Lys Ser Asn Lys Tyr Thr Thr His Tyr Ala Glu Ser
 1 5 10 15

Val Lys Gly

<210> 23
 <211> 19
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 23
 Glu Ile Arg Leu Lys Ser Asn Ser Tyr Thr Thr His Tyr Ala Glu Ser
 1 5 10 15

Val Lys Gly

<210> 24
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 24
 Arg Pro Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu
 1 5 10 15

<210> 25
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 25
 Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Phe Glu
 1 5 10 15

<210> 26
 <211> 16
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 26

Arg Pro Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Phe Glu
 1 5 10 15

<210> 27

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 27

Arg Pro Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe
 1 5 10 15

<210> 28

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 28

Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Phe
 1 5 10 15

<210> 29

<211> 16

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 29

Arg Pro Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Leu Phe
 1 5 10 15

<210> 30

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 30

Phe Gln Gly Ser His Pro Pro Leu Thr
 1 5

<210> 31

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 31

Ala Gln Asn Leu Glu Pro Pro Pro Thr
 1 5

<210> 32

<211> 118

<212> PRT

<213> Mus musculus

<400> 32

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110

Thr Leu Thr Val Ser Ser
 115

<210> 33

<211> 117

<212> PRT

<213> Mus musculus

<400> 33

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser
 115

<210> 34
 <211> 114
 <212> PRT
 <213> Mus musculus

<400> 34
 Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15
 Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
 20 25 30
 Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45
 Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
 85 90 95
 Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys
 100 105 110
 Arg Ala

<210> 35
 <211> 114
 <212> PRT
 <213> Mus musculus

<400> 35

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
 1 5 10 15
 Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
 20 25 30
 Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser
 35 40 45
 Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65 70 75 80
 Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
 85 90 95
 Leu Glu Leu Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110
 Arg Ala

<210> 36

<211> 275

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 36

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110

Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Gly Gly Ser Gly Gly
 115 120 125
 Gly Gly Ser Gly Gly Ser Ala Arg Asp Ile Val Leu Thr Gln Thr Pro
 130 135 140
 Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg
 145 150 155 160
 Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp
 165 170 175
 Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val
 180 185 190
 Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser
 195 200 205
 Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu
 210 215 220
 Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly
 225 230 235 240
 Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His
 245 250 255
 His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn
 260 265 270
 Gly Ala Ala
 275

<210> 37
 <211> 266
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 37
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Gly Ser Ser Ala Asp
 115 120 125
 Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp
 130 135 140
 Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn
 145 150 155 160
 Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro
 165 170 175
 Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp
 180 185 190
 Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser
 195 200 205
 Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser
 210 215 220
 His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg
 225 230 235 240
 Ala Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu
 245 250 255
 Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala
 260 265

<210> 38

<211> 265

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 38

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Ser Ser Ala Asp Ile
115 120 125

Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln
130 135 140

Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly
145 150 155 160

Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys
165 170 175

Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg
180 185 190

Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg
195 200 205

Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His
210 215 220

Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala
225 230 235 240

Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile
245 250 255

Ser Glu Glu Asp Leu Asn Gly Ala Ala
260 265

<210> 39

<211> 264

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 39

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Ser Ala Asp Ile Val
 115 120 125
 Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala
 130 135 140
 Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn
 145 150 155 160
 Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu
 165 170 175
 Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe
 180 185 190
 Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val
 195 200 205
 Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val
 210 215 220
 Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala
 225 230 235 240
 Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser
 245 250 255
 Glu Glu Asp Leu Asn Gly Ala Ala
 260

<210> 40

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 40

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser Ala Ser Ser Ser Ser Ala Asp Ile Val Leu
 115 120 125
 Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser
 130 135 140
 Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr
 145 150 155 160
 Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu
 165 170 175
 Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser
 180 185 190
 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu
 195 200 205
 Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro
 210 215 220
 Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala
 225 230 235 240
 His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu
 245 250 255
 Glu Asp Leu Asn Gly Ala Ala
 260

<210> 41

<211> 262

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic single chain Fv format

<400> 41

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Thr Leu Thr Val Ser Ser Ala Ser Ser Ser Ala Asp Ile Val Leu Thr
115 120 125

Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile
130 135 140

Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr
145 150 155 160

Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile
165 170 175

Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly
180 185 190

Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala
195 200 205

Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu
210 215 220

Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala Hi
225 230 235 24

His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Gl
245 250 255

Asp Leu Asn Gly Ala Ala
260

<210> 42
 <211> 261
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 42
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser Ala Ser Ser Ala Asp Ile Val Leu Thr Gln
 115 120 125
 Thr Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser
 130 135 140
 Cys Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu
 145 150 155 160
 Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr
 165 170 175
 Lys Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser
 180 185 190
 Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu
 195 200 205
 Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr
 210 215 220
 Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His
 225 230 235 240
 His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp
 245 250 255

Leu Asn Gly Ala Ala
260

<210> 43
<211> 260
<212> PRT
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 43
Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15
Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
20 25 30
Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45
Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
50 55 60
Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
65 70 75 80
Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
85 90 95
Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110
Thr Leu Thr Val Ser Ser Ala Ser Ala Asp Ile Val Leu Thr Gln Thr
115 120 125
Pro Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys
130 135 140
Arg Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu
145 150 155 160
Trp Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys
165 170 175
Val Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly
180 185 190
Ser Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp
195 200 205
Leu Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe
210 215 220
Gly Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His
225 230 235 240

His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
 245 250 255

Asn Gly Ala Ala
 260

<210> 44

<211> 259

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 44

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Ser Ala Ala Asp Ile Val Leu Thr Gln Thr Pro
 115 120 125
 Leu Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg
 130 135 140
 Ser Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp
 145 150 155 160
 Tyr Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val
 165 170 175
 Ser Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser
 180 185 190
 Gly Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu
 195 200 205

Gly Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly
 210 215 220

Asp Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His
 225 230 235 240

His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn
 245 250 255

Gly Ala Ala

<210> 45

<211> 255

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 45

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110

Thr Leu Thr Val Ser Ser Ala Asp Ile Val Leu Thr Gln Thr Pro Leu
 115 120 125

Ser Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser
 130 135 140

Ser Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr
 145 150 155 160

Leu Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser
 165 170 175

Asn Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly
 180 185 190

Thr Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly
 195 200 205

Val Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp
 210 215 220

Gly Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His
 225 230 235 240

His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Val His Gln
 245 250 255

<210> 46

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 46

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110

Thr Leu Thr Val Ser Ser Asp Ile Val Leu Thr Gln Thr Pro Leu Ser
 115 120 125

Leu Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser
 130 135 140

Gln Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu
 145 150 155 160

Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn
 165 170 175

Arg Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr
 180 185 190

Asp Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val
 195 200 205

Tyr Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp Gly
 210 215 220

Thr Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His His
 225 230 235 240

Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala
 245 250 255

Ala

<210> 47
 <211> 256
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 47
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80

Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110

Thr Leu Thr Val Ser Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu
 115 120 125

Pro Val Ser Leu Gly Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln
 130 135 140

Ser Ile Val His Ser Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln
 145 150 155 160

Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg
 165 170 175
 Phe Ser Gly Val Pro Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp
 180 185 190
 Phe Thr Leu Lys Ile Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr
 195 200 205
 Tyr Cys Phe Gln Gly Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr
 210 215 220
 Lys Leu Glu Leu Lys Arg Ala Ala Ala His His His His His His Gly
 225 230 235 240
 Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala
 245 250 255

<210> 48

<211> 274

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 48

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Gly Gly Ser Gly Gly Gly
 115 120 125

Gly Ser Gly Gly Ser Ala Arg Asp Ile Val Met Thr Gln Ala Ala Phe
 130 135 140

Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser
 145 150 155 160

Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr
 165 170 175

Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser
 180 185 190

Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly
 195 200 205

Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly
 210 215 220

Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly
 225 230 235 240

Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His
 245 250 255

His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly
 260 265 270

Ala Ala

<210> 49

<211> 265

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 49

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Gly Ser Ser Ala Asp Ile
 115 120 125
 Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser
 130 135 140
 Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly
 145 150 155 160
 Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln
 165 170 175
 Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg
 180 185 190
 Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg
 195 200 205
 Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu
 210 215 220
 Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala
 225 230 235 240
 Ala Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile
 245 250 255
 Ser Glu Glu Asp Leu Asn Gly Ala Ala
 260 265

<210> 50

<211> 264

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 50

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser Ala Ser Ser Gly Gly Ser Ser Ala Asp Ile Val
 115 120 125
 Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala
 130 135 140
 Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile
 145 150 155 160
 Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu
 165 170 175
 Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe
 180 185 190
 Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val
 195 200 205
 Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu
 210 215 220
 Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala
 225 230 235 240
 Ala His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser
 245 250 255
 Glu Glu Asp Leu Asn Gly Ala Ala
 260

<210> 51

<211> 263

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 51

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser Ala Ser Ser Gly Ser Ser Ala Asp Ile Val Met
 115 120 125
 Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser
 130 135 140
 Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr
 145 150 155 160
 Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu
 165 170 175
 Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser
 180 185 190
 Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu
 195 200 205
 Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro
 210 215 220
 Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala
 225 230 235 240
 His His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu
 245 250 255
 Glu Asp Leu Asn Gly Ala Ala
 260

<210> 52

<211> 262

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 52

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser Ala Ser Ser Ser Ser Ala Asp Ile Val Met Thr
 115 120 125
 Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile
 130 135 140
 Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr
 145 150 155 160
 Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile
 165 170 175
 Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser
 180 185 190
 Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala
 195 200 205
 Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro
 210 215 220
 Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His
 225 230 235 240
 His His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu
 245 250 255
 Asp Leu Asn Gly Ala Ala
 260

<210> 53

<211> 261

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
single chain Fv format

<400> 53

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ser Ala Ser Ser Ser Ala Asp Ile Val Met Thr Gln
 115 120 125
 Ala Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser
 130 135 140
 Cys Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe
 145 150 155 160
 Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr
 165 170 175
 Gln Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser
 180 185 190
 Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu
 195 200 205
 Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr
 210 215 220
 Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His
 225 230 235 240
 His His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp
 245 250 255
 Leu Asn Gly Ala Ala
 260

<210> 54

<211> 260

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic single chain Fv format

<400> 54

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
100 105 110

Leu Thr Val Ser Ser Ala Ser Ser Ala Asp Ile Val Met Thr Gln Ala
115 120 125

Ala Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys
130 135 140

Arg Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe
145 150 155 160

Trp Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln
165 170 175

Met Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly
180 185 190

Ser Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp
195 200 205

Val Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe
210 215 220

Gly Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His
225 230 235 240

His His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu
245 250 255

Asn Gly Ala Ala
260

<210> 55

<211> 259

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic single chain Fv format

<400> 55

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
100 105 110

Leu Thr Val Ser Ser Ala Ser Ala Asp Ile Val Met Thr Gln Ala Ala
115 120 125

Phe Ser Asn Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg
130 135 140

Ser Ser Lys Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp
145 150 155 160

Tyr Leu Gln Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met
165 170 175

Ser Asn Leu Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser
180 185 190

Gly Thr Asp Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val
195 200 205

Gly Val Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly
210 215 220

Gly Gly Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His
225 230 235 240

His His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn
245 250 255


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<210> 56
<211> 258
<212> PRT
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic
      single chain Fv format
```

<400> 56																	
Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly		
1				5					10					15			
Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr		
			20					25					30				
Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu		
	50					55					60						
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser		
65					70					75					80		
Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Tyr		
				85					90					95			
Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr		
			100					105					110				
Leu	Thr	Val	Ser	Ser	Ala	Ala	Asp	Ile	Val	Met	Thr	Gln	Ala	Ala	Phe		
		115					120					125					
Ser	Asn	Pro	Val	Thr	Leu	Gly	Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg	Ser		
	130					135					140						
Ser	Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Phe	Phe	Trp	Tyr		
145					150					155					160		
Leu	Gln	Lys	Pro	Gly	Leu	Ser	Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met	Ser		
				165					170					175			
Asn	Leu	Ala	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser	Gly		
			180					185					190				
Thr	Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly		
	195						200					205					
Val	Tyr	Tyr	Cys	Ala	Gln	Asn	Leu	Glu	Leu	Pro	Pro	Thr	Phe	Gly	Gly		
	210					215					220						
Gly	Thr	Lys	Leu	Glu	Ile	Lys	Arg	Ala	Ala	Ala	His	His	His	His	His		
225					230					235					240		

His Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly
 245 250 255

Ala Ala

<210> 57

<211> 257

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 57

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly		
1				5					10					15			
Ser	Met	Lys	Leu	Ser	Cys	Val	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asn	Tyr		
			20					25					30				
Trp	Met	Asn	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val		
		35					40					45					
Ala	Glu	Ile	Arg	Leu	Lys	Ser	Asn	Asn	Tyr	Thr	Thr	His	Tyr	Ala	Glu		
		50				55					60						
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Asp	Ser	Lys	Ser	Ser		
65				70					75						80		
Val	Ser	Leu	Gln	Met	Asn	Asn	Leu	Arg	Val	Glu	Asp	Thr	Gly	Ile	Tyr		
			85					90						95			
Tyr	Cys	Thr	Arg	His	Tyr	Tyr	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	Thr		
			100					105					110				
Leu	Thr	Val	Ser	Ser	Ala	Asp	Ile	Val	Met	Thr	Gln	Ala	Ala	Phe	Ser		
		115					120					125					
Asn	Pro	Val	Thr	Leu	Gly	Thr	Ser	Ala	Ser	Ile	Ser	Cys	Arg	Ser	Ser		
	130					135					140						
Lys	Ser	Leu	Leu	His	Ser	Asn	Gly	Ile	Thr	Tyr	Phe	Phe	Trp	Tyr	Leu		
145				150						155					160		
Gln	Lys	Pro	Gly	Leu	Ser	Pro	Gln	Leu	Leu	Ile	Tyr	Gln	Met	Ser	Asn		
			165					170					175				
Leu	Ala	Ser	Gly	Val	Pro	Asp	Arg	Phe	Ser	Ser	Ser	Gly	Ser	Gly	Thr		
		180					185						190				
Asp	Phe	Thr	Leu	Arg	Ile	Ser	Arg	Val	Glu	Ala	Glu	Asp	Val	Gly	Val		
		195					200					205					

Tyr Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly
 210 215 220

Thr Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His
 225 230 235 240

Gly Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala
 245 250 255

Ala

<210> 58

<211> 256

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 58

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110

Leu Thr Val Ser Ser Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn
 115 120 125

Pro Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys
 130 135 140

Ser Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln
 145 150 155 160

Lys Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu
 165 170 175

Ala Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp
 180 185 190

Phe Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr
 195 200 205

Tyr Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr
 210 215 220

Lys Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His Gly
 225 230 235 240

Ala Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala
 245 250 255

<210> 59

<211> 255

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 single chain Fv format

<400> 59

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110

Leu Thr Val Ser Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro
 115 120 125

Val Thr Leu Gly Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser
 130 135 140

Leu Leu His Ser Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys
 145 150 155 160

Pro Gly Leu Ser Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala
 165 170 175

Ser Gly Val Pro Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe
 180 185 190

Thr Leu Arg Ile Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr
 195 200 205

Cys Ala Gln Asn Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys
 210 215 220

Leu Glu Ile Lys Arg Ala Ala Ala His His His His His His Gly Ala
 225 230 235 240

Ala Glu Gln Lys Leu Ile Ser Glu Glu Asp Leu Asn Gly Ala Ala
 245 250 255

<210> 60

<211> 219

<212> PRT

<213> Mus musculus

<400> 60

Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
 1 5 10 15

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
 20 25 30

Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
 35 40 45

Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
 50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
 65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
 85 90 95

Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys
 100 105 110

Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu
 115 120 125

Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe
 130 135 140

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg
 145 150 155 160

Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser
 165 170 175

Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu
 180 185 190

Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser
 195 200 205

Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
 210 215

<210> 61

<211> 219

<212> PRT

<213> Mus musculus

<400> 61

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
 1 5 10 15

Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
 20 25 30

Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser
 35 40 45

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
 50 55 60

Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
 65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
 85 90 95

Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110

Arg Ala Asp Ala Ala Pro Thr Val Ser Ile Phe Pro Pro Ser Ser Glu
 115 120 125

Gln Leu Thr Ser Gly Gly Ala Ser Val Val Cys Phe Leu Asn Asn Phe
 130 135 140

Tyr Pro Lys Asp Ile Asn Val Lys Trp Lys Ile Asp Gly Ser Glu Arg
 145 150 155 160

Gln Asn Gly Val Leu Asn Ser Trp Thr Asp Gln Asp Ser Lys Asp Ser
 165 170 175

Thr Tyr Ser Met Ser Ser Thr Leu Thr Leu Thr Lys Asp Glu Tyr Glu
 180 185 190

Arg His Asn Ser Tyr Thr Cys Glu Ala Thr His Lys Thr Ser Thr Ser
 195 200 205

Pro Ile Val Lys Ser Phe Asn Arg Asn Glu Cys
 210 215

<210> 62
 <211> 441
 <212> PRT
 <213> Mus musculus

<400> 62

Glu	Val	Lys	Leu	Val	Glu	Ser	Gly	Gly	Gly	Leu	Val	Gln	Pro	Gly	Gly	1	5	10	15
Ser	Met	Lys	Leu	Ser	Cys	Ala	Ala	Ser	Gly	Phe	Thr	Phe	Ser	Asp	Ala	20	25	30	
Trp	Met	Asp	Trp	Val	Arg	Gln	Ser	Pro	Glu	Lys	Gly	Leu	Glu	Trp	Val	35	40	45	
Ala	Glu	Ile	Arg	Ser	Lys	Ala	Asn	Asn	His	Ala	Thr	Tyr	Tyr	Ala	Glu	50	55	60	
Ser	Val	Lys	Gly	Arg	Phe	Thr	Ile	Ser	Arg	Asp	Val	Ser	Lys	Ser	Ser	65	70	75	80
Val	Tyr	Leu	Gln	Met	Asn	Asn	Leu	Arg	Ala	Glu	Asp	Thr	Gly	Ile	Tyr	85	90	95	
Tyr	Cys	Thr	Arg	Gly	Gly	Tyr	Gly	Phe	Asp	Tyr	Trp	Gly	Gln	Gly	Thr	100	105	110	
Thr	Leu	Thr	Val	Ser	Ala	Lys	Thr	Thr	Pro	Pro	Ser	Val	Tyr	Pro	Leu	115	120	125	
Ala	Pro	Gly	Ser	Ala	Ala	Gln	Thr	Asn	Ser	Met	Val	Thr	Leu	Gly	Cys	130	135	140	
Leu	Val	Lys	Gly	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Thr	Trp	Asn	Ser	145	150	155	160
Gly	Ser	Leu	Ser	Ser	Gly	Val	His	Thr	Phe	Pro	Ala	Val	Leu	Glu	Ser	165	170	175	
Asp	Leu	Tyr	Thr	Leu	Ser	Ser	Ser	Val	Thr	Val	Pro	Ser	Ser	Pro	Arg	180	185	190	
Pro	Ser	Glu	Thr	Val	Thr	Cys	Asn	Val	Ala	His	Pro	Ala	Ser	Ser	Thr	195	200	205	
Lys	Val	Asp	Lys	Lys	Ile	Val	Pro	Arg	Asp	Cys	Gly	Cys	Lys	Pro	Cys	210	215	220	
Ile	Cys	Thr	Val	Pro	Glu	Val	Ser	Ser	Val	Phe	Ile	Phe	Pro	Pro	Lys	225	230	235	240
Pro	Lys	Asp	Val	Leu	Thr	Ile	Thr	Leu	Thr	Pro	Lys	Val	Thr	Cys	Val	245	250	255	
Val	Val	Asp	Ile	Ser	Lys	Asp	Asp	Pro	Glu	Val	Gln	Phe	Ser	Trp	Phe	260	265	270	

Val Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu
 275 280 285
 Gln Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His
 290 295 300
 Gln Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala
 305 310 315 320
 Ala Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg
 325 330 335
 Pro Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met
 340 345 350
 Ala Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro
 355 360 365
 Glu Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn
 370 375 380
 Tyr Lys Asn Thr Gln Pro Ile Met Asn Thr Asn Gly Ser Tyr Phe Val
 385 390 395 400
 Tyr Ser Lys Leu Asn Val Gln Lys Ser Asn Trp Glu Ala Gly Asn Thr
 405 410 415
 Phe Thr Cys Ser Val Leu His Glu Gly Leu His Asn His His Thr Glu
 420 425 430
 Lys Ser Leu Ser His Ser Pro Gly Lys
 435 440

<210> 63
 <211> 440
 <212> PRT
 <213> Mus musculus

<400> 63
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Ala Lys Thr Thr Pro Pro Ser Val Tyr Pro Leu Ala
 115 120 125
 Pro Gly Ser Ala Ala Gln Thr Asn Ser Met Val Thr Leu Gly Cys Leu
 130 135 140
 Val Lys Gly Tyr Phe Pro Glu Pro Val Thr Val Thr Trp Asn Ser Gly
 145 150 155 160
 Ser Leu Ser Ser Gly Val His Thr Phe Pro Ala Val Leu Glu Ser Asp
 165 170 175
 Leu Tyr Thr Leu Ser Ser Ser Val Thr Val Pro Ser Ser Pro Arg Pro
 180 185 190
 Ser Glu Thr Val Thr Cys Asn Val Ala His Pro Ala Ser Ser Thr Lys
 195 200 205
 Val Asp Lys Lys Ile Val Pro Arg Asp Cys Gly Cys Lys Pro Cys Ile
 210 215 220
 Cys Thr Val Pro Glu Val Ser Ser Val Phe Ile Phe Pro Pro Lys Pro
 225 230 235 240
 Lys Asp Val Leu Thr Ile Thr Leu Thr Pro Lys Val Thr Cys Val Val
 245 250 255
 Val Asp Ile Ser Lys Asp Asp Pro Glu Val Gln Phe Ser Trp Phe Val
 260 265 270
 Asp Asp Val Glu Val His Thr Ala Gln Thr Gln Pro Arg Glu Glu Gln
 275 280 285
 Phe Asn Ser Thr Phe Arg Ser Val Ser Glu Leu Pro Ile Met His Gln
 290 295 300
 Asp Trp Leu Asn Gly Lys Glu Phe Lys Cys Arg Val Asn Ser Ala Ala
 305 310 315 320
 Phe Pro Ala Pro Ile Glu Lys Thr Ile Ser Lys Thr Lys Gly Arg Pro
 325 330 335
 Lys Ala Pro Gln Val Tyr Thr Ile Pro Pro Pro Lys Glu Gln Met Ala
 340 345 350
 Lys Asp Lys Val Ser Leu Thr Cys Met Ile Thr Asp Phe Phe Pro Glu
 355 360 365
 Asp Ile Thr Val Glu Trp Gln Trp Asn Gly Gln Pro Ala Glu Asn Tyr
 370 375 380
 Lys Asn Thr Gln Pro Ile Met Asn Thr Asn Gly Ser Tyr Phe Val Tyr
 385 390 395 400

Ser Leu Ser His Ser Pro Gly Lys
435 440

<213> Artificial Sequence

<223> Description of Artificial Sequence: Synthetic mouse/human chimeric heavy chain

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
65 70 75 80

Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
100 105 110

Thr Leu Thr Val Ser Gly Ser Thr Lys Gly Pro Ser Val Phe Pro Leu
115 120 125

Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys
130 135 140

Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser
145 150 155 160

Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser
165 170 175

Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser
180 185 190

Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn
195 200 205

Thr Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His
 210 215 220
 Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val
 225 230 235 240
 Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr
 245 250 255
 Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu
 260 265 270
 Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys
 275 280 285
 Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser
 290 295 300
 Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys
 305 310 315 320
 Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile
 325 330 335
 Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro
 340 345 350
 Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu
 355 360 365
 Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn
 370 375 380
 Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser
 385 390 395 400
 Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg
 405 410 415
 Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu
 420 425 430
 His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440 445

<210> 65

<211> 446

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 mouse/human chimeric heavy chain

<400> 65

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
1 5 10 15

Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
20 25 30

Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
35 40 45

Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
50 55 60

Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
65 70 75 80

Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
100 105 110

Leu Thr Val Ser Gly Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala
115 120 125

Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala Leu Gly Cys Leu
130 135 140

Val	Lys	Asp	Tyr	Phe	Pro	Glu	Pro	Val	Thr	Val	Ser	Trp	Asn	Ser	Gly
145					150					155					160

Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser
165 170 175

Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro Ser Ser Ser Leu
180 185 190

Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys Pro Ser Asn Thr
195 200 205

Lys Val Asp Lys Lys Val Glu Pro Lys Ser Cys Asp Lys Thr His Thr
210 215 220

Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser Val Phe
225 230 235 240

Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg Thr Pro
245 250 255

Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro Glu Val
260 265 270

Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala Lys Thr
275 280 285

Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val Ser Val
290 295 300

Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr Lys Cys
 305 310 315 320
 Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr Ile Ser
 325 330 335
 Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu Pro Pro
 340 345 350
 Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys Leu Val
 355 360 365
 Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser Asn Gly
 370 375 380
 Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp Ser Asp
 385 390 395 400
 Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser Arg Trp
 405 410 415
 Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala Leu His
 420 425 430
 Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 435 440 445

<210> 66

<211> 570

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
mouse/human chimeric heavy chain

<400> 66

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Ala
 20 25 30
 Trp Met Asp Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Ser Lys Ala Asn Asn His Ala Thr Tyr Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Val Ser Lys Ser Ser
 65 70 75 80
 Val Tyr Leu Gln Met Asn Asn Leu Arg Ala Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Arg Gly Gly Tyr Gly Phe Asp Tyr Trp Gly Gln Gly Thr
 100 105 110

Thr Leu Thr Val Ser Gly Ser Ala Ser Ala Pro Thr Leu Phe Pro Leu
 115 120 125
 Val Ser Cys Glu Asn Ser Pro Ser Asp Thr Ser Ser Val Ala Val Gly
 130 135 140
 Cys Leu Ala Gln Asp Phe Leu Pro Asp Ser Ile Thr Leu Ser Trp Lys
 145 150 155 160
 Tyr Lys Asn Asn Ser Asp Ile Ser Ser Thr Arg Gly Phe Pro Ser Val
 165 170 175
 Leu Arg Gly Gly Lys Tyr Ala Ala Thr Ser Gln Val Leu Leu Pro Ser
 180 185 190
 Lys Asp Val Met Gln Gly Thr Asp Glu His Val Val Cys Lys Val Gln
 195 200 205
 His Pro Asn Gly Asn Lys Glu Lys Asn Val Pro Leu Pro Val Ile Ala
 210 215 220
 Glu Leu Pro Pro Lys Val Ser Val Phe Val Pro Pro Arg Asp Gly Phe
 225 230 235 240
 Phe Gly Asn Pro Arg Lys Ser Lys Leu Ile Cys Gln Ala Thr Gly Phe
 245 250 255
 Ser Pro Arg Gln Ile Gln Val Ser Trp Leu Arg Glu Gly Lys Gln Val
 260 265 270
 Gly Ser Gly Val Thr Thr Asp Gln Val Gln Ala Glu Ala Lys Glu Ser
 275 280 285
 Gly Pro Thr Thr Tyr Lys Val Thr Ser Thr Leu Thr Ile Lys Glu Ser
 290 295 300
 Asp Trp Leu Gly Gln Ser Met Phe Thr Cys Arg Val Asp His Arg Gly
 305 310 315 320
 Leu Thr Phe Gln Gln Asn Ala Ser Ser Met Cys Val Pro Asp Gln Asp
 325 330 335
 Thr Ala Ile Arg Val Phe Ala Ile Pro Pro Ser Phe Ala Ser Ile Phe
 340 345 350
 Leu Thr Lys Ser Thr Lys Leu Thr Cys Leu Val Thr Asp Leu Thr Thr
 355 360 365
 Tyr Asp Ser Val Thr Ile Ser Trp Thr Arg Gln Asn Gly Glu Ala Val
 370 375 380
 Lys Thr His Thr Asn Ile Ser Glu Ser His Pro Asn Ala Thr Phe Ser
 385 390 395 400
 Ala Val Gly Glu Ala Ser Ile Cys Glu Asp Asp Trp Asn Ser Gly Glu
 405 410 415

Arg Phe Thr Cys Thr Val Thr His Thr Asp Leu Pro Ser Pro Leu Lys
 420 425 430
 Gln Thr Ile Ser Arg Pro Lys Gly Val Ala Leu His Arg Pro Asp Val
 435 440 445
 Tyr Leu Leu Pro Pro Ala Arg Glu Gln Leu Asn Leu Arg Glu Ser Ala
 450 455 460
 Thr Ile Thr Cys Leu Val Thr Gly Phe Ser Pro Ala Asp Val Phe Val
 465 470 475 480
 Gln Trp Met Gln Arg Gly Gln Pro Leu Ser Pro Glu Lys Tyr Val Thr
 485 490 495
 Ser Ala Pro Met Pro Glu Pro Gln Ala Pro Gly Arg Tyr Phe Ala His
 500 505 510
 Ser Ile Leu Thr Val Ser Glu Glu Glu Trp Asn Thr Gly Glu Thr Tyr
 515 520 525
 Thr Cys Val Val Ala His Glu Ala Leu Pro Asn Arg Val Thr Glu Arg
 530 535 540
 Thr Val Asp Lys Ser Thr Gly Lys Pro Thr Leu Tyr Asn Val Ser Leu
 545 550 555 560
 Val Met Ser Asp Thr Ala Gly Thr Cys Tyr
 565 570

<210> 67

<211> 569

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
mouse/human chimeric heavy chain

<400> 67

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Val Ala Ser Gly Phe Thr Phe Ser Asn Tyr
 20 25 30
 Trp Met Asn Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Glu Ile Arg Leu Lys Ser Asn Asn Tyr Thr Thr His Tyr Ala Glu
 50 55 60
 Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asp Ser Lys Ser Ser
 65 70 75 80
 Val Ser Leu Gln Met Asn Asn Leu Arg Val Glu Asp Thr Gly Ile Tyr
 85 90 95

Tyr Cys Thr Arg His Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr
 100 105 110
 Leu Thr Val Ser Gly Ser Ala Ser Ala Pro Thr Leu Phe Pro Leu Val
 115 120 125
 Ser Cys Glu Asn Ser Pro Ser Asp Thr Ser Ser Val Ala Val Gly Cys
 130 135 140
 Leu Ala Gln Asp Phe Leu Pro Asp Ser Ile Thr Leu Ser Trp Lys Tyr
 145 150 155 160
 Lys Asn Asn Ser Asp Ile Ser Ser Thr Arg Gly Phe Pro Ser Val Leu
 165 170 175
 Arg Gly Gly Lys Tyr Ala Ala Thr Ser Gln Val Leu Leu Pro Ser Lys
 180 185 190
 Asp Val Met Gln Gly Thr Asp Glu His Val Val Cys Lys Val Gln His
 195 200 205
 Pro Asn Gly Asn Lys Glu Lys Asn Val Pro Leu Pro Val Ile Ala Glu
 210 215 220
 Leu Pro Pro Lys Val Ser Val Phe Val Pro Pro Arg Asp Gly Phe Phe
 225 230 235 240
 Gly Asn Pro Arg Lys Ser Lys Leu Ile Cys Gln Ala Thr Gly Phe Ser
 245 250 255
 Pro Arg Gln Ile Gln Val Ser Trp Leu Arg Glu Gly Lys Gln Val Gly
 260 265 270
 Ser Gly Val Thr Thr Asp Gln Val Gln Ala Glu Ala Lys Glu Ser Gly
 275 280 285
 Pro Thr Thr Tyr Lys Val Thr Ser Thr Leu Thr Ile Lys Glu Ser Asp
 290 295 300
 Trp Leu Gly Gln Ser Met Phe Thr Cys Arg Val Asp His Arg Gly Leu
 305 310 315 320
 Thr Phe Gln Gln Asn Ala Ser Ser Met Cys Val Pro Asp Gln Asp Thr
 325 330 335
 Ala Ile Arg Val Phe Ala Ile Pro Pro Ser Phe Ala Ser Ile Phe Leu
 340 345 350
 Thr Lys Ser Thr Lys Leu Thr Cys Leu Val Thr Asp Leu Thr Thr Tyr
 355 360 365
 Asp Ser Val Thr Ile Ser Trp Thr Arg Gln Asn Gly Glu Ala Val Lys
 370 375 380
 Thr His Thr Asn Ile Ser Glu Ser His Pro Asn Ala Thr Phe Ser Ala
 385 390 395 400

<213> Artificial Sequence

<223> Description of Artificial Sequence: Synthetic mouse/human chimeric light chain

Asp Ile Val Leu Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15

Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Ile Val His Ser
20 25 30

Asn Gly Asn Thr Tyr Leu Glu Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45

Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60

Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Tyr Cys Phe Gln Gly
85 90 95

Ser His Val Pro Leu Thr Phe Gly Asp Gly Thr Lys Leu Glu Leu Lys
100 105 110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
130 135 140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
210 215

<210> 69

<211> 219

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
mouse/human chimeric light chain

<400> 69

Asp Ile Val Met Thr Gln Ala Ala Phe Ser Asn Pro Val Thr Leu Gly
1 5 10 15

Thr Ser Ala Ser Ile Ser Cys Arg Ser Ser Lys Ser Leu Leu His Ser
20 25 30

Asn Gly Ile Thr Tyr Phe Phe Trp Tyr Leu Gln Lys Pro Gly Leu Ser
35 40 45

Pro Gln Leu Leu Ile Tyr Gln Met Ser Asn Leu Ala Ser Gly Val Pro
50 55 60

Asp Arg Phe Ser Ser Ser Gly Ser Gly Thr Asp Phe Thr Leu Arg Ile
65 70 75 80

Ser Arg Val Glu Ala Glu Asp Val Gly Val Tyr Tyr Cys Ala Gln Asn
85 90 95

Leu Glu Leu Pro Pro Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
 100 105 110

Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu
 115 120 125

Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe
 130 135 140

Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln
 145 150 155 160

Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser
 165 170 175

Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu
 180 185 190

Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser
 195 200 205

Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 210 215

<210> 70

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<400> 70

Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala
 1 5 10 15

Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala
 20 25 30

<210> 71

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 peptide

<220>

<221> MOD_RES

<222> (13)

<223> Thr(GalNAc-alpha)

<400> 71

Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala
 1 5 10 15

Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala
 20 25 30

<210> 72

<211> 100

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>

<221> MOD_RES

<222> (21)..(60)

<223> region may or may not be present

<220>

<221> MOD_RES

<222> (61)..(100)

<223> region may or may not be present

<400> 72

Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro
 1 5 10 15

Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly
 20 25 30

Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg
 35 40 45

Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala
 50 55 60

Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly
 65 70 75 80

Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro
 85 90 95

Pro Ala His Gly
 100

<210> 73

<211> 101

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic peptide

<220>
 <221> MOD_RES
 <222> (10)
 <223> Thr(GalNAc-alpha)

<220>
 <221> MOD_RES
 <222> (22)..(61)
 <223> region may or may not be present

<220>
 <221> MOD_RES
 <222> (30)
 <223> Thr(GalNAc-alpha), if present

<220>
 <221> MOD_RES
 <222> (50)
 <223> Thr(GalNAc-alpha), if present

<220>
 <221> MOD_RES
 <222> (62)..(101)
 <223> region may or may not be present

<220>
 <221> MOD_RES
 <222> (70)
 <223> Thr(GalNAc-alpha), if present

<220>
 <221> MOD_RES
 <222> (90)
 <223> Thr(GalNAc-alpha), if present

<400> 73
 Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser
 1 5 10 15
 Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro
 20 25 30
 Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro
 35 40 45
 Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val
 50 55 60
 Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro
 65 70 75 80
 Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser
 85 90 95
 Thr Ala Pro Pro Ala
 100

<210> 74
 <211> 29
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 74
 Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala
 1 5 10 15
 Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
 20 25

<210> 75
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 75
 aattggatcc gagcccagac actggac

27

<210> 76
 <211> 27
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 76
 accgtctaga cgcactcatt taccgcg

27

<210> 77
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 77
 acctggatcc gctaggaaga aactcaaaac

30

<210> 78
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 78
 accgtctaga ccctctaaca ctctcccctg

30

<210> 79
 <211> 28
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 79
 atcgggatcc gatagccatg acagtctg

28

<210> 80
 <211> 26
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 primer

<400> 80
 agcgtctaga cagggtcagt agcagg

26

<210> 81
 <211> 5
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 peptide

<400> 81
 Pro Asp Thr Arg Pro
 1 5

<210> 82
 <211> 118
 <212> PRT
 <213> Artificial Sequence

)

<220>
<223> Description of Artificial Sequence: Synthetic
variable heavy chain construct

<220>
<221> MOD_RES
<222> (23)
<223> Ala or Val

<220>
<221> MOD_RES
<222> (24)
<223> Ala, Val, Ser, or Thr

<220>
<221> MOD_RES
<222> (27)
<223> Tyr, Phe, Ser, or Asp

<220>
<221> MOD_RES
<222> (29)
<223> Phe, Leu, or Ile

<220>
<221> MOD_RES
<222> (31)..(35)
<223> this region may encompass either SEQ ID NO: 1, SEQ ID
NO: 2, or variants thereof

<220>
<221> MOD_RES
<222> (50)..(68)
<223> this region may encompass either SEQ ID NO: 3, SEQ ID
NO: 4, or variants thereof

<220>
<221> MOD_RES
<222> (76)
<223> Asp or Val

<220>
<221> MOD_RES
<222> (82)
<223> Tyr or Ser

<220>
<221> MOD_RES
<222> (90)
<223> Ala or Val

<220>
<221> MOD_RES
<222> (100)
<223> Arg, Gly, Asn, Lys, or Ser

<220>
 <221> MOD_RES
 <222> (101)..(106)
 <223> this region may encompass either residues 1-6 of
 SEQ ID NO: 5, SEQ ID NO: 6, or variants thereof

<220>
 <221> MOD_RES
 <222> (107)
 <223> Tyr or not present

<220>
 <221> MOD_RES
 <222> (118)
 <223> Ser or Ala

<400> 82
 Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15
 Ser Met Lys Leu Ser Cys Xaa Xaa Ser Gly Xaa Thr Xaa Ser Xaa Xaa
 20 25 30
 Xaa Xaa Xaa Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val
 35 40 45
 Ala Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 50 55 60
 Xaa Xaa Xaa Xaa Arg Phe Thr Ile Ser Arg Asp Xaa Ser Lys Ser Ser
 65 70 75 80
 Val Xaa Leu Gln Met Asn Asn Leu Arg Xaa Glu Asp Thr Gly Ile Tyr
 85 90 95
 Tyr Cys Thr Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Gly Gln Gly Thr
 100 105 110
 Thr Leu Thr Val Ser Xaa
 115

<210> 83
 <211> 114
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 variable light chain construct

<220>
 <221> MOD_RES
 <222> (2)
 <223> Ile, Val, or Leu

<220>
<221> MOD_RES
<222> (4)
<223> Met or Leu

<220>
<221> MOD_RES
<222> (7)
<223> Thr or Ala

<220>
<221> MOD_RES
<222> (8)
<223> Pro or Ala

<220>
<221> MOD_RES
<222> (9)
<223> Leu or Phe

<220>
<221> MOD_RES
<222> (11)
<223> Leu or Asn

<220>
<221> MOD_RES
<222> (14)
<223> Ser or Thr

<220>
<221> MOD_RES
<222> (17)
<223> Asp or Thr

<220>
<221> MOD_RES
<222> (18)
<223> Gln or Ser

<220>
<221> MOD_RES
<222> (24)..(39)
<223> this region may encompass either SEQ ID NO: 7, SEQ ID
NO: 8, or variants thereof

<220>
<221> MOD_RES
<222> (47)
<223> Gln or Leu

<220>
<221> MOD_RES
<222> (50)
<223> Lys or Gln

<220>
 <221> MOD_RES
 <222> (53)
 <223> Ile or Val

<220>
 <221> MOD_RES
 <222> (55)..(61)
 <223> this region may encompass either SEQ ID NO: 9, SEQ ID
 NO: 10, or variants thereof

<220>
 <221> MOD_RES
 <222> (69)
 <223> Gly or Ser

<220>
 <221> MOD_RES
 <222> (79)
 <223> Lys or Arg

<220>
 <221> MOD_RES
 <222> (88)
 <223> Leu or Val

<220>
 <221> MOD_RES
 <222> (94)..(102)
 <223> this region may encompass either SEQ ID NO: 11, SEQ ID
 NO: 12, or variants thereof

<220>
 <221> MOD_RES
 <222> (105)
 <223> Gly or Asp

<220>
 <221> MOD_RES
 <222> (111)
 <223> Ile or Leu

<400> 83
 Asp Xaa Val Xaa Thr Gln Xaa Xaa Xaa Ser Xaa Pro Val Xaa Leu Gly
 1 5 10 15
 Xaa Xaa Ala Ser Ile Ser Cys Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 20 25 30
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Tyr Leu Gln Lys Pro Gly Xaa Ser
 35 40 45
 Pro Xaa Leu Leu Xaa Tyr Xaa Xaa Xaa Xaa Xaa Xaa Gly Val Pro
 50 55 60
 Asp Arg Phe Ser Xaa Ser Gly Ser Gly Thr Asp Phe Thr Leu Xaa Ile
 65 70 75 80

Ser Arg Val Glu Ala Glu Asp Xaa Gly Val Tyr Tyr Cys Xaa Xaa Xaa
 85 90 95

Xaa Xaa Xaa Xaa Xaa Xaa Phe Gly Xaa Gly Thr Lys Leu Glu Xaa Lys
 100 105 110

Arg Ala

<210> 84

<211> 30

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 antibody framework heavy chain sequence

<220>

<221> MOD_RES

<222> (23)

<223> Ala or Val

<220>

<221> MOD_RES

<222> (24)

<223> Ala, Val, Ser, or Thr

<220>

<221> MOD_RES

<222> (27)

<223> Tyr, Phe, Ser, or Asp

<220>

<221> MOD_RES

<222> (29)

<223> Phe, Leu, or Ile

<400> 84

Glu Val Lys Leu Val Glu Ser Gly Gly Gly Leu Val Gln Pro Gly Gly
 1 5 10 15

Ser Met Lys Leu Ser Cys Xaa Xaa Ser Gly Xaa Thr Xaa Ser
 20 25 30

<210> 85

<211> 14

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 antibody framework heavy chain sequence

<400> 85

Trp Val Arg Gln Ser Pro Glu Lys Gly Leu Glu Trp Val Ala
 1 5 10

<210> 86

<211> 32

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 antibody framework heavy chain sequence

<220>

<221> MOD_RES

<222> (8)

<223> Asp or Val

<220>

<221> MOD_RES

<222> (14)

<223> Tyr or Ser

<220>

<221> MOD_RES

<222> (22)

<223> Ala or Val

<220>

<221> MOD_RES

<222> (32)

<223> Arg, Gly, Asn, Lys, or Ser

<400> 86

Arg Phe Thr Ile Ser Arg Asp Xaa Ser Lys Ser Ser Val Xaa Leu Gln
 1 5 10 15

Met Asn Asn Leu Arg Xaa Glu Asp Thr Gly Ile Tyr Tyr Cys Thr Xaa
 20 25 30

<210> 87

<211> 11

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
 antibody framework heavy chain sequence

<220>

<221> MOD_RES

<222> (11)

<223> Ser or Ala

<400> 87

Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Xaa
1 5 10

<210> 88

<211> 23

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Synthetic
antibody framework light chain sequence

<220>

<221> MOD_RES

<222> (2)

<223> Ile, Val, or Leu

<220>

<221> MOD_RES

<222> (4)

<223> Met or Leu

<220>

<221> MOD_RES

<222> (7)

<223> Thr or Ala

<220>

<221> MOD_RES

<222> (8)

<223> Phe or Ala

<220>

<221> MOD_RES

<222> (9)

<223> Leu or Phe

<220>

<221> MOD_RES

<222> (11)

<223> Leu or Asn

<220>

<221> MOD_RES

<222> (14)

<223> Ser or Thr

<220>

<221> MOD_RES

<222> (17)

<223> Asp or Thr

<220>
 <221> MOD_RES
 <222> (18)
 <223> Gln or Ser

<400> 88
 Asp Xaa Val Xaa Thr Gln Xaa Xaa Xaa Ser Xaa Pro Val Xaa Leu Gly
 1 5 10 15
 Xaa Xaa Ala Ser Ile Ser Cys
 20

<210> 89
 <211> 15
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 antibody framework light chain sequence

<220>
 <221> MOD_RES
 <222> (8)
 <223> Gln or Leu

<220>
 <221> MOD_RES
 <222> (11)
 <223> Lys or Gln

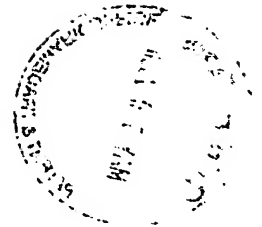
<220>
 <221> MOD_RES
 <222> (14)
 <223> Ile or Val

<400> 89
 Trp Tyr Leu Gln Lys Pro Gly Xaa Ser Pro Xaa Leu Leu Xaa Tyr
 1 5 10 15

<210> 90
 <211> 32
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 antibody framework light chain sequence

<220>
 <221> MOD_RES
 <222> (8)
 <223> Gly or Ser



<220>
 <221> MOD_RES
 <222> (18)
 <223> Lys or Arg

<220>
 <221> MOD_RES
 <222> (27)
 <223> Leu or Val

<400> 90
 Gly Val Pro Asp Arg Phe Ser Xaa Ser Gly Ser Gly Thr Asp Phe Thr
 1 5 10 15
 Leu Xaa Ile Ser Arg Val Glu Ala Glu Asp Xaa Gly Val Tyr Tyr Cys
 20 25 30

<210> 91
 <211> 12
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Synthetic
 antibody framework light chain sequence

<220>
 <221> MOD_RES
 <222> (3)
 <223> Gly or Asp

<220>
 <221> MOD_RES
 <222> (9)
 <223> Ile or Leu

<400> 91
 Phe Gly Xaa Gly Thr Lys Leu Glu Xaa Lys Arg Ala
 1 5 10